MCSO Calibration Information

Since March 2011 the Marion County Surveyor's Office (MCSO) has used the InCORS system operated by the Indiana Department of Transportation (INDOT) in conjunction with Trimble R6 GNSS satellite receivers to obtain state plane coordinates for corner locations. To obtain NAD83 (1986) coordinates* from the NAD83 (CORS 96)(2002 Epoch) information provided by InCORS the MCSO observed existing IMAGIS monuments to obtain a horizontal calibration file. When this was done the following results were obtained:

Translation North:	-0.494 ft
Translation East:	-0.859 ft
Rotation:	-0°00'00.05651"
Origin North:	1,651,100.929 ft
Origin East:	191,801.635 ft
Scale Factor:	0.9999999809

The coordinates calculated for the origin of this calibrated system are near Alabama Street and St. Joseph in the northeast quadrant of downtown Indianapolis. The scale factor would cause a correction of less than 0.01' over 20 miles and the rotation would cause a change of less than 0.03' over the same distance from the origin. For some uses, only the translations are needed to compare results with our data.

A larger calibration using 47 existing IMAGIS monuments was also performed in Trimble Geomatics Office which yielded translations of -0.50' north and -0.88' east to confirm the calibration performed in the data collector (20 points maximum).

On April 5, 2013 INDOT changed the InCORS coordinate system NAD83 (2011)(Epoch 2010.0000). We reprocessed the calibration to the appropriate new station coordinates to obtain the following:

Translation North:	-0.470 ft
Translation East:	-0.930 ft
Rotation:	-0°00'00.00463"
Origin North:	1,651,100.905 ussf
Origin East:	191,801.705 ussf
Scale Factor:	0.9999999607

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* MCSO uses NAD83 (1986) to have one consistent coordinate system and because the corners are used in the Indianapolis Mapping & Geographic Infrastructure System (IMAGIS) which maintains many data sets on the same system. This information is provided, in part, to aid others in comparing coordinates with our results. GPS data has been collected since the early 1990's by the MCSO with a variety of equipment and methods. These methods include static surveys and RTK surveys which might have had to leapfrog multiple times to reach points due to radio link range limitations. So newly obtained coordinates may vary somewhat from those published on prior corner tie sheets. The coordinates are intended to be an aid in finding monuments, not a substitute for other surveyors locating them.